**2N4416**
**2N4416A**

# SILICON N-CHANNEL JFETS

**TO-72 CASE**

**Central Semiconductor Corp.**
www.centralsemi.com

## DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N4416 and 2N4416A are silicon N-Channel Junction Field Effect Transistors designed for VHF amplifier and mixer applications.

## MARKING: FULL PART NUMBER

| **MAXIMUM RATINGS:** ($T_A$=25°C) | **SYMBOL** | **2N4416** | **2N4416A** | **UNITS** |
|---|---|---|---|---|
| Gate-Drain Voltage | $V_{GD}$ | 30 | 35 | V |
| Gate-Source Voltage | $V_{GS}$ | 30 | 35 | V |
| Drain-Source Voltage | $V_{DS}$ | 30 | 35 | V |
| Gate Current | $I_G$ | 10 | | mA |
| Power Dissipation | $P_D$ | 300 | | mW |
| Operating and Storage Junction Temperature | $T_J$, $T_{stg}$ | -65 to +200 | | °C |

**ELECTRICAL CHARACTERISTICS:** ($T_A$=25°C unless otherwise noted)

| | | **2N4416** | | **2N4416A** | | |
|---|---|---|---|---|---|---|
| **SYMBOL** | **TEST CONDITIONS** | **MIN** | **MAX** | **MIN** | **MAX** | **UNITS** |
| $I_{GSS}$ | $V_{GS}$=20V, $V_{DS}$=0 | - | 100 | - | 100 | pA |
| $I_{GSS}$ | $V_{GS}$=20V, $V_{DS}$=0, $T_A$=150°C | - | 100 | - | 100 | nA |
| $I_{DSS}$ | $V_{DS}$=15V, $V_{GS}$=0 | 5.0 | 15 | 5.0 | 15 | mA |
| $BV_{GSS}$ | $I_G$=1.0μA | 30 | - | 35 | - | V |
| $V_{GS(off)}$ | $V_{DS}$=15V, $I_D$=1.0nA | - | 6.0 | 2.5 | 6.0 | V |
| $g_{FS}$ | $V_{DS}$=15V, $V_{GS}$=0, f=1.0kHz | 4,500 | 7,500 | 4,500 | 7,500 | μS |
| $g_{OS}$ | $V_{DS}$=15V, $V_{GS}$=0, f=1.0kHz | - | 50 | - | 50 | μS |
| $C_{rss}$ | $V_{DS}$=15V, $V_{GS}$=0, f=1.0MHz | - | 1.0 | - | 1.0 | pF |
| $C_{iss}$ | $V_{DS}$=15V, $V_{GS}$=0, f=1.0MHz | - | 4.0 | - | 4.0 | pF |
| $C_{oss}$ | $V_{DS}$=15V, $V_{GS}$=0, f=1.0MHz | - | 2.0 | - | 2.0 | pF |

| **HIGH FREQUENCY CHARACTERISTICS:** | | **100MHz** | | **400MHz** | | |
|---|---|---|---|---|---|---|
| **SYMBOL** | **TEST CONDITIONS** | **MIN** | **MAX** | **MIN** | **MAX** | **UNITS** |
| $g_{iss}$ | $V_{DS}$=15V, $V_{GS}$=0 | - | 100 | - | 1,000 | μS |
| $b_{iss}$ | $V_{DS}$=15V, $V_{GS}$=0 | - | 2,500 | - | 10,000 | μS |
| $g_{oss}$ | $V_{DS}$=15V, $V_{GS}$=0 | - | 75 | - | 100 | μS |
| $b_{oss}$ | $V_{DS}$=15V, $V_{GS}$=0 | - | 1,000 | - | 4,000 | μS |
| $g_{fs}$ | $V_{DS}$=15V, $V_{GS}$=0 | - | - | 4,000 | - | μS |
| $G_{ps}$ | $V_{DS}$=15V, $I_D$=5.0mA | 18 | - | 10 | - | dB |
| NF | $V_{DS}$=15V, $I_D$=5.0mA, $R_G$=1.0kΩ | - | 2.0 | - | 4.0 | dB |

R2 (4-June 2013)

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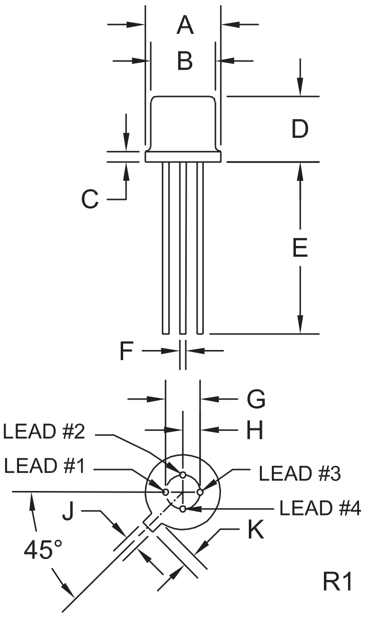
## TO-72 CASE - MECHANICAL OUTLINE



| DIMENSIONS | | | | |
|---|---|---|---|---|
| | INCHES | | MILLIMETERS | |
| SYMBOL | MIN | MAX | MIN | MAX |
| A (DIA) | 0.209 | 0.230 | 5.31 | 5.84 |
| B (DIA) | 0.175 | 0.195 | 4.45 | 4.95 |
| C | - | 0.030 | - | 0.76 |
| D | 0.170 | 0.210 | 4.32 | 5.33 |
| E | 0.500 | - | 12.70 | - |
| F (DIA) | 0.016 | 0.019 | 0.41 | 0.48 |
| G (DIA) | 0.100 | | 2.54 | |
| H | 0.050 | | 1.27 | |
| J | 0.036 | 0.046 | 0.91 | 1.17 |
| K | 0.028 | 0.048 | 0.71 | 1.22 |

TO-72 (REV: R1)

**LEAD CODE:**
1) Source
2) Drain
3) Gate
4) Case

**MARKING:**
**FULL PART NUMBER**

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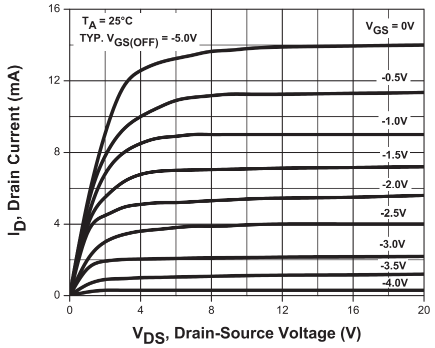
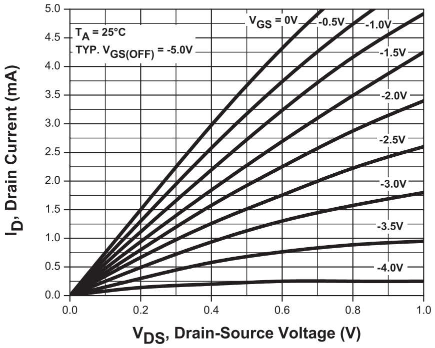
## TYPICAL ELECTRICAL CHARACTERISTICS

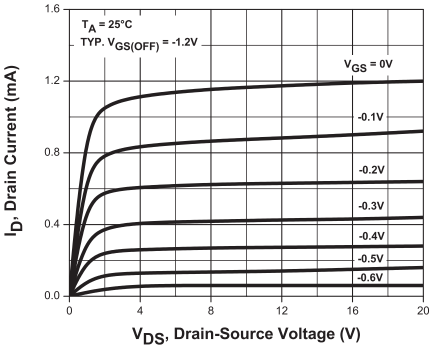
### Output Characteristics



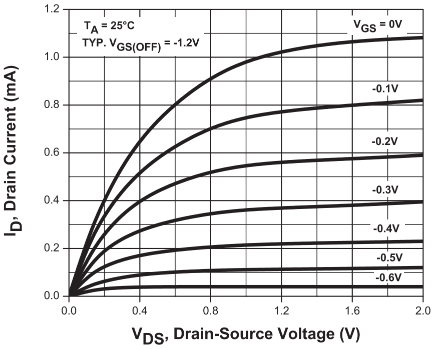
### Output Characteristics



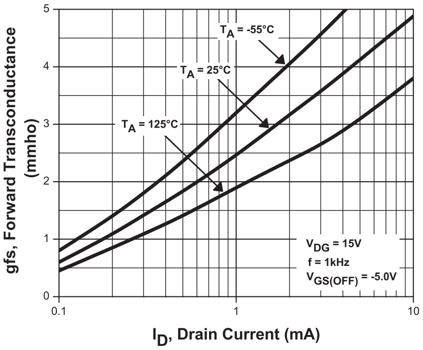
### Output Characteristics



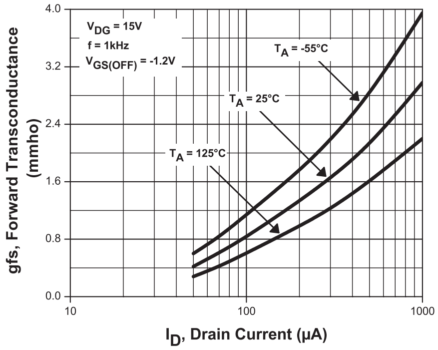
### Output Characteristics



### Forward Transconductance Characteristics



### Forward Transconductance Characteristics



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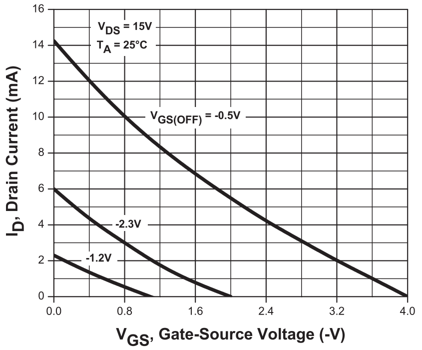
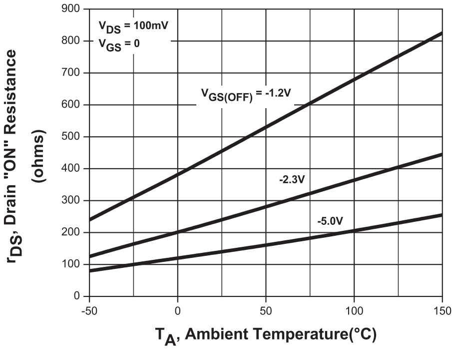
## TYPICAL ELECTRICAL CHARACTERISTICS

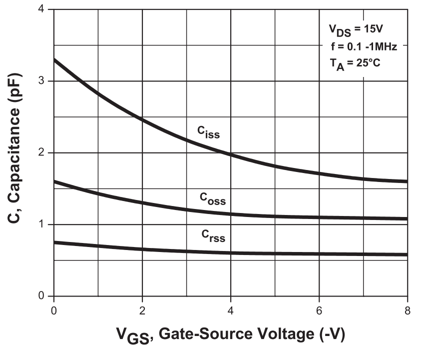
Drain Currenct vs. Gate-Source Voltage



"ON" Resistance vs. Ambient Temperature



Capacitance



Power Derating